# United States Patent [19]

**Henderson et al.**

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[54] **PORCH AND STAIR ASSEMBLY FOR MOBILE HOMES**


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[73] Assignee: **Hendercraft Metal Works, Inc.,** Claremore, Okla.



[21] Appl. No.: **428,642**

[22] Filed: **Sep. 30, 1982**

[51] **Int. Cl.**[3] ..... **E04B 1/343**

[52] **U.S. Cl.** ..... **52/79.6;** 52/184

[58] **Field of Search** ..... 52/79.6, 183, 184, 191



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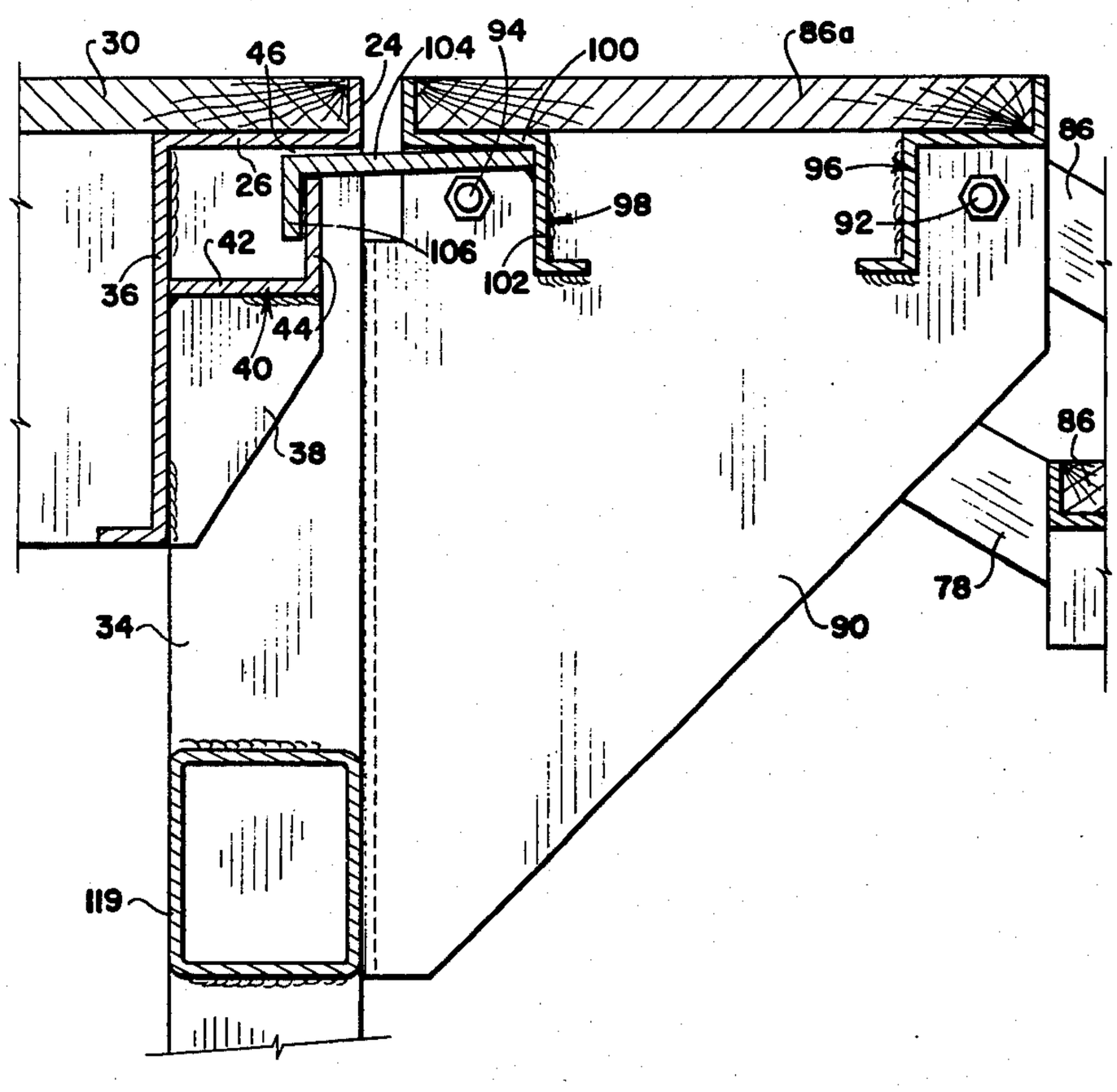
*Attorney, Agent, or Firm*—Head, Johnson & Stevenson

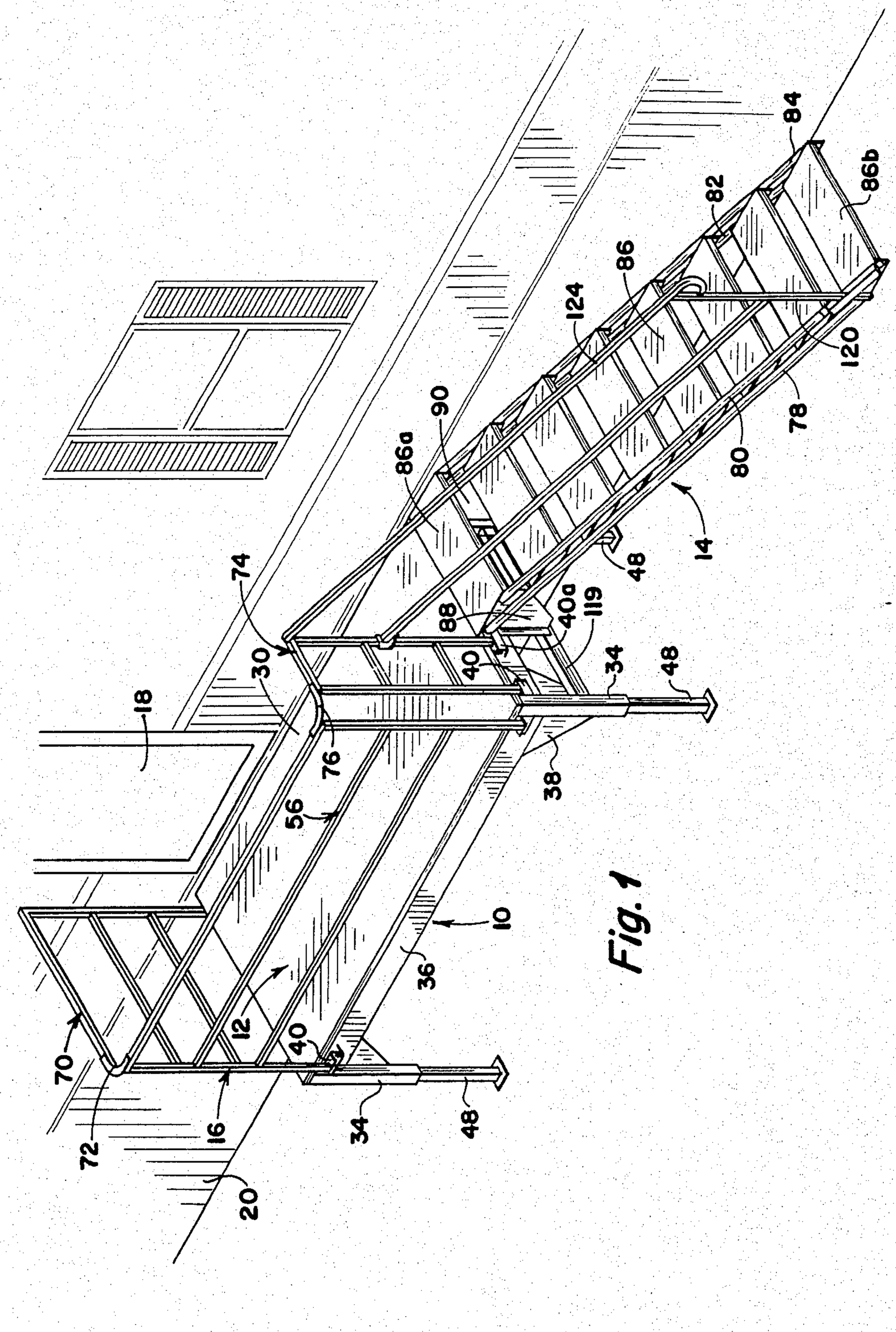


[57] **ABSTRACT**

A porch and stairway assembly for a mobile home, or the like, which may be readily assembled or disassembled, and which comprises a porch section, a handrail section and a stairway section, the sections having co-operating interlocking bracket members for sliding and pivoting engagement to readily lock the sections in the assembled relationship and unlock the sections when the porch and stairway assembly is not needed. The entire assembly may be secured together with a minimum number of securing elements, such as bolts, or the like, thus greatly facilitating both the installation and removal of the assembly.


**5 Claims, 11 Drawing Figures**

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20

Fig. 1

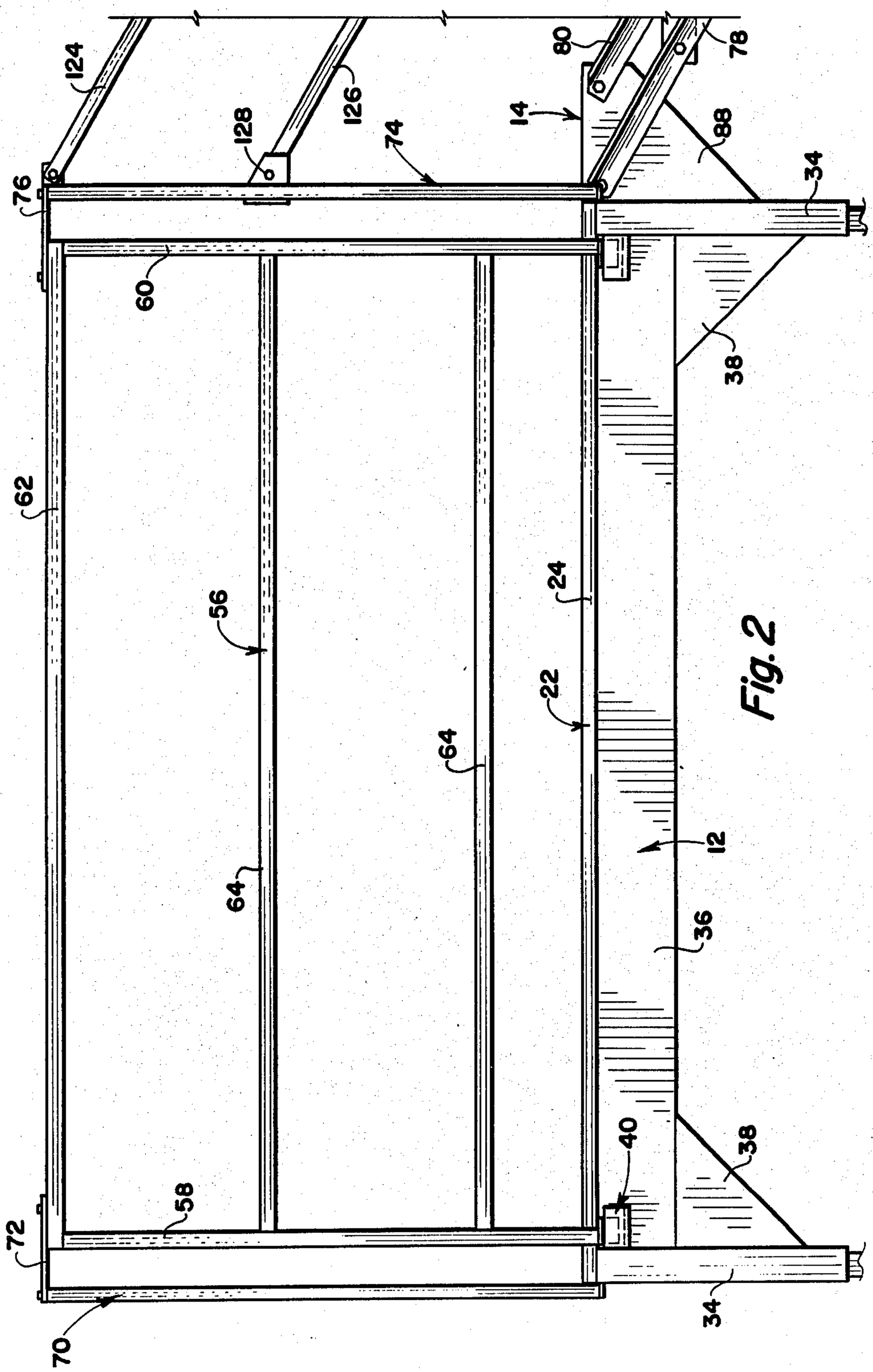
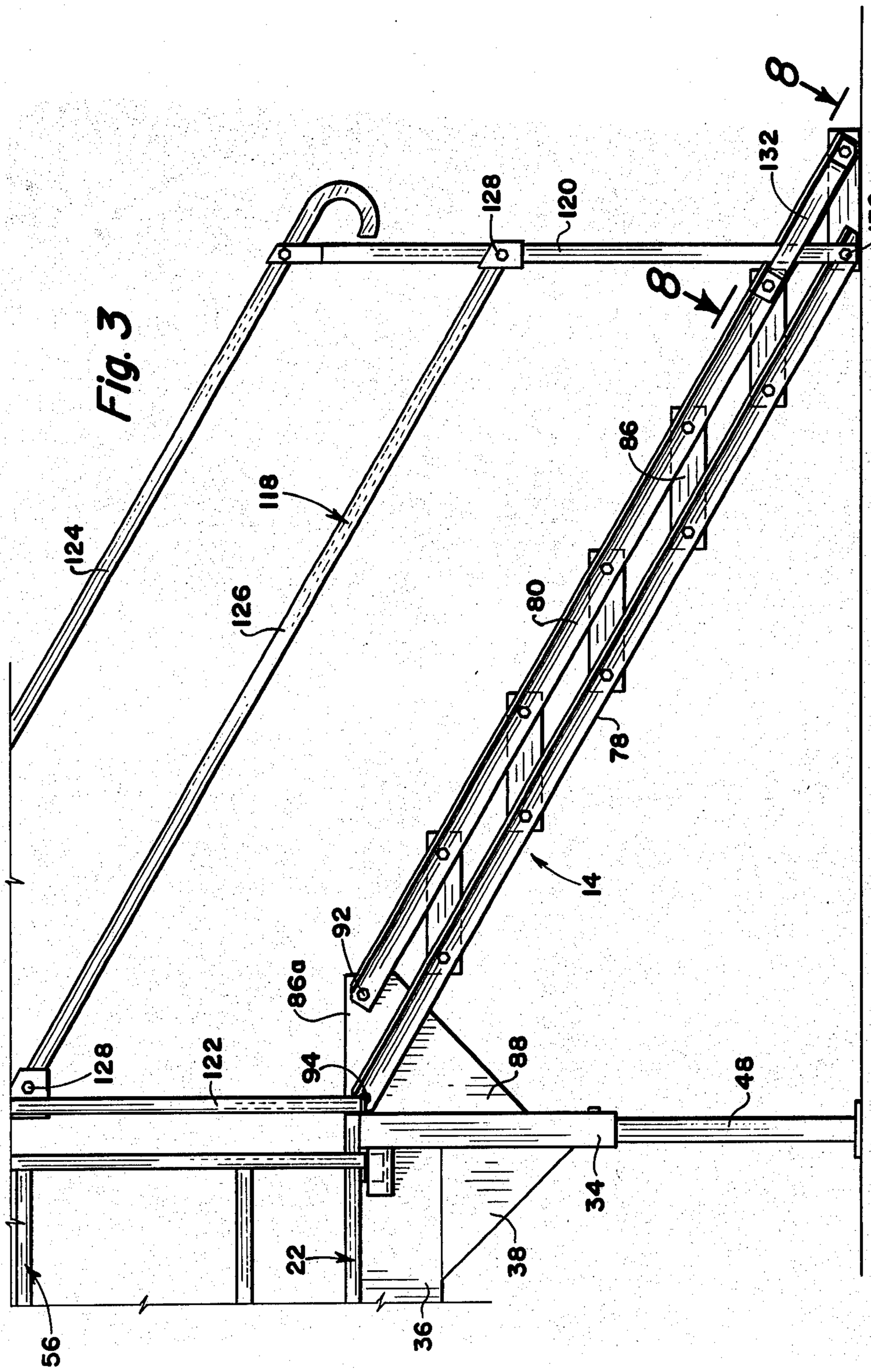



Fig. 2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86
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36

Fig. 3

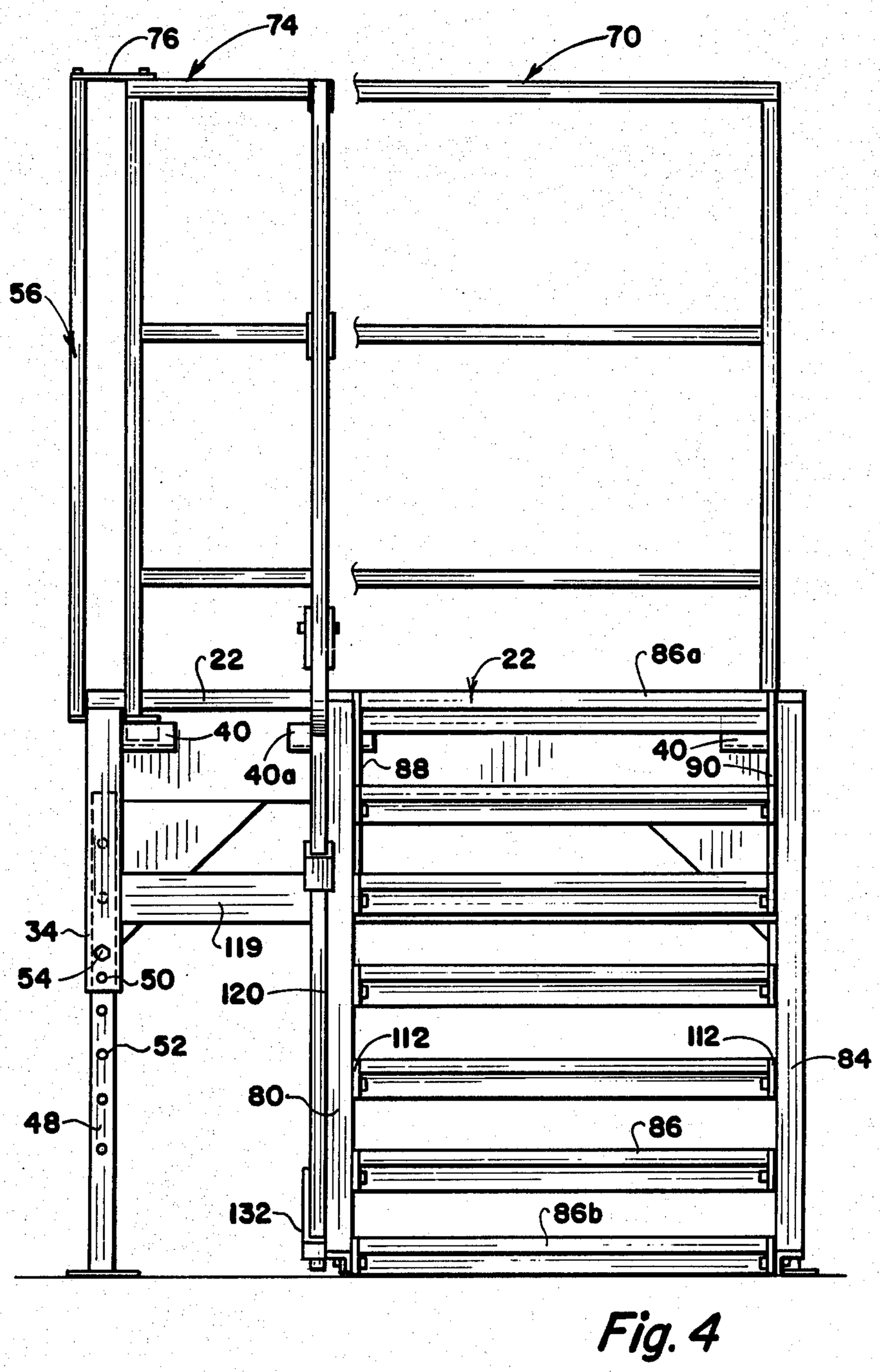
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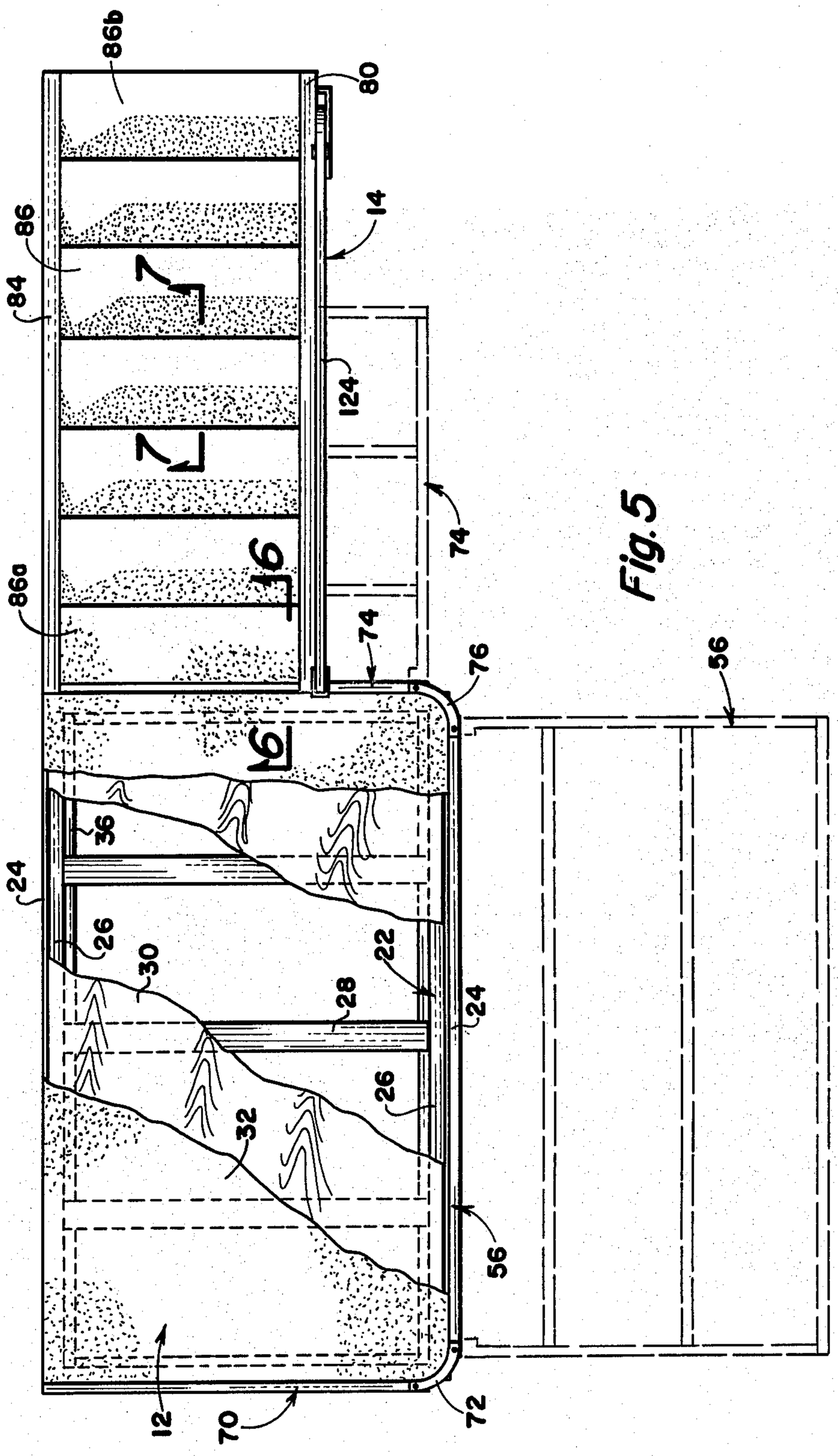
Fig. 4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84
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16
124
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86a
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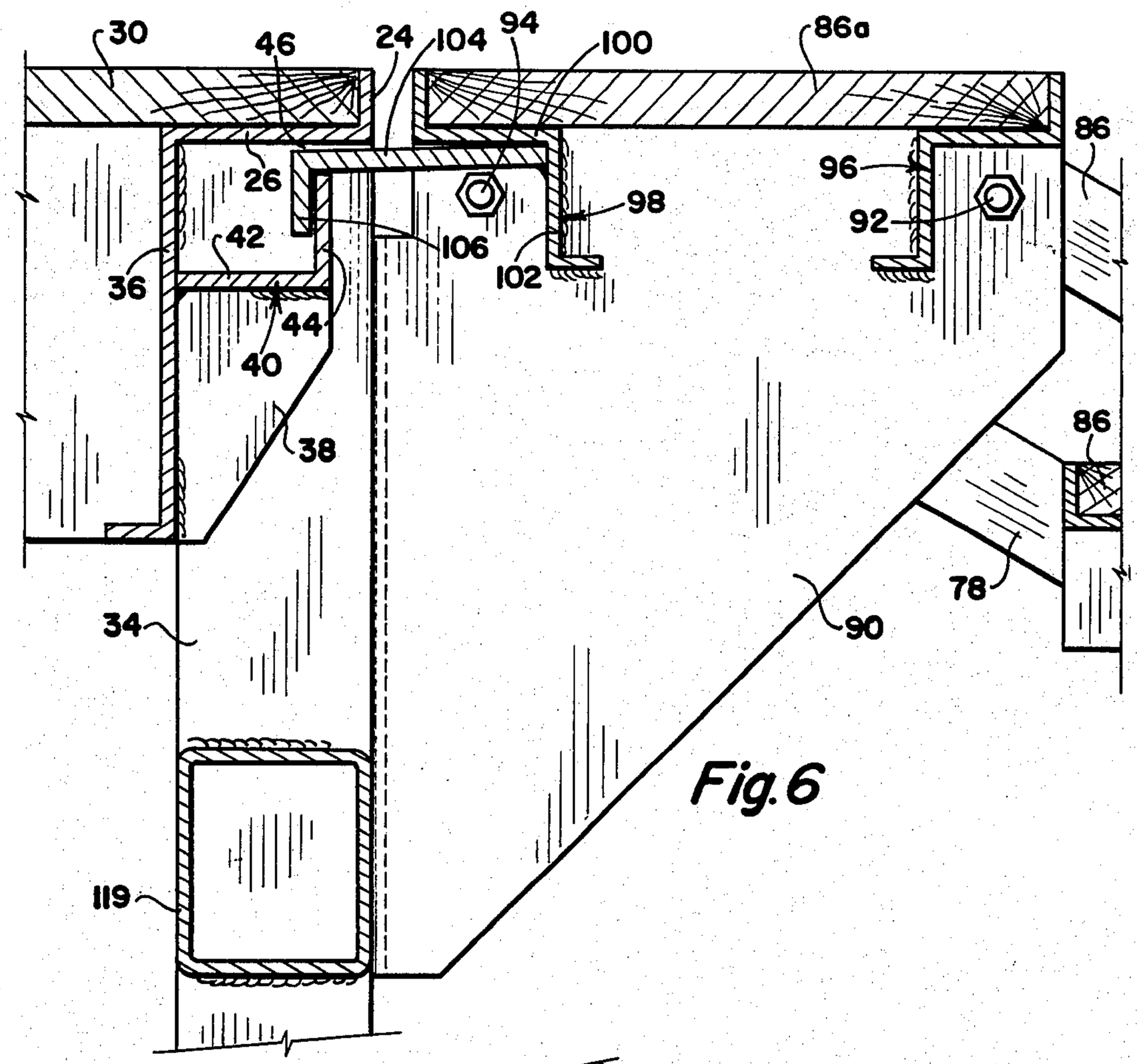
22
28
24
26
32
56
12
70
72

Fig. 5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46
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104
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100
86a
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98
26
42
106
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119
90
78
86
108
114
84
116
112
110
82

Fig. 6

Fig. 7

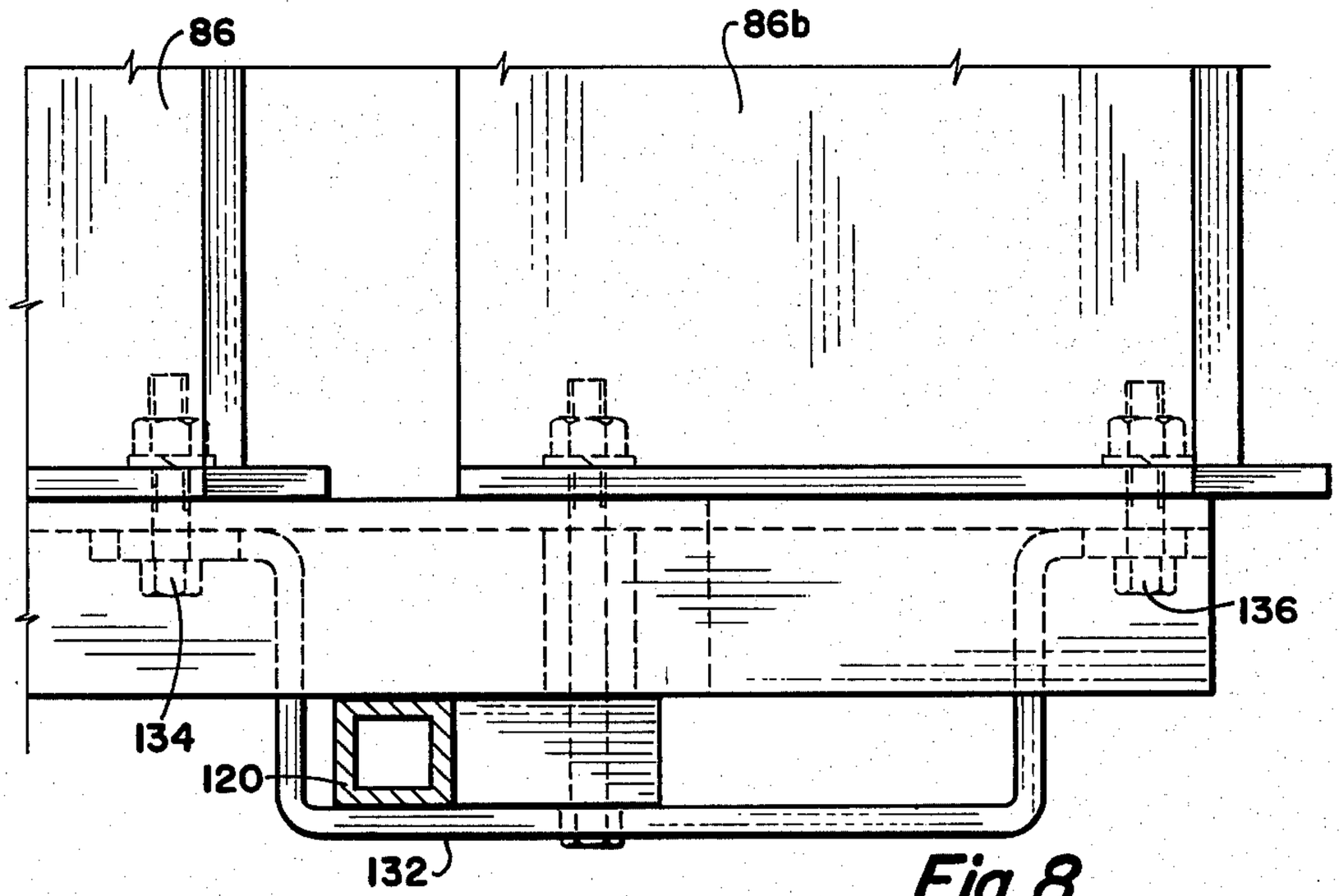
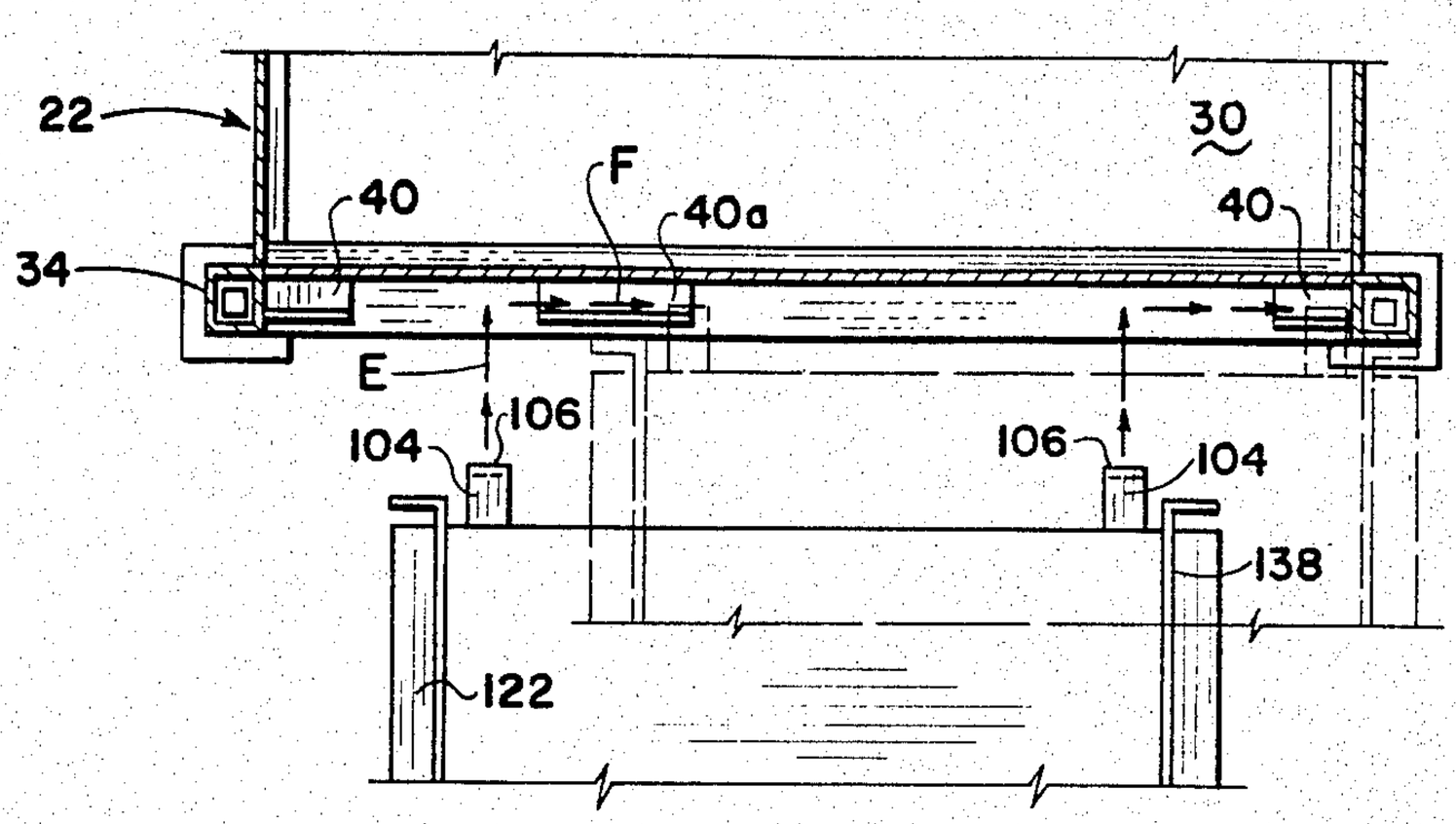



Fig. 8




Fig. 9


22
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F
40
40a
40
34
E
106
104
106
104
138
122

Fig. 10

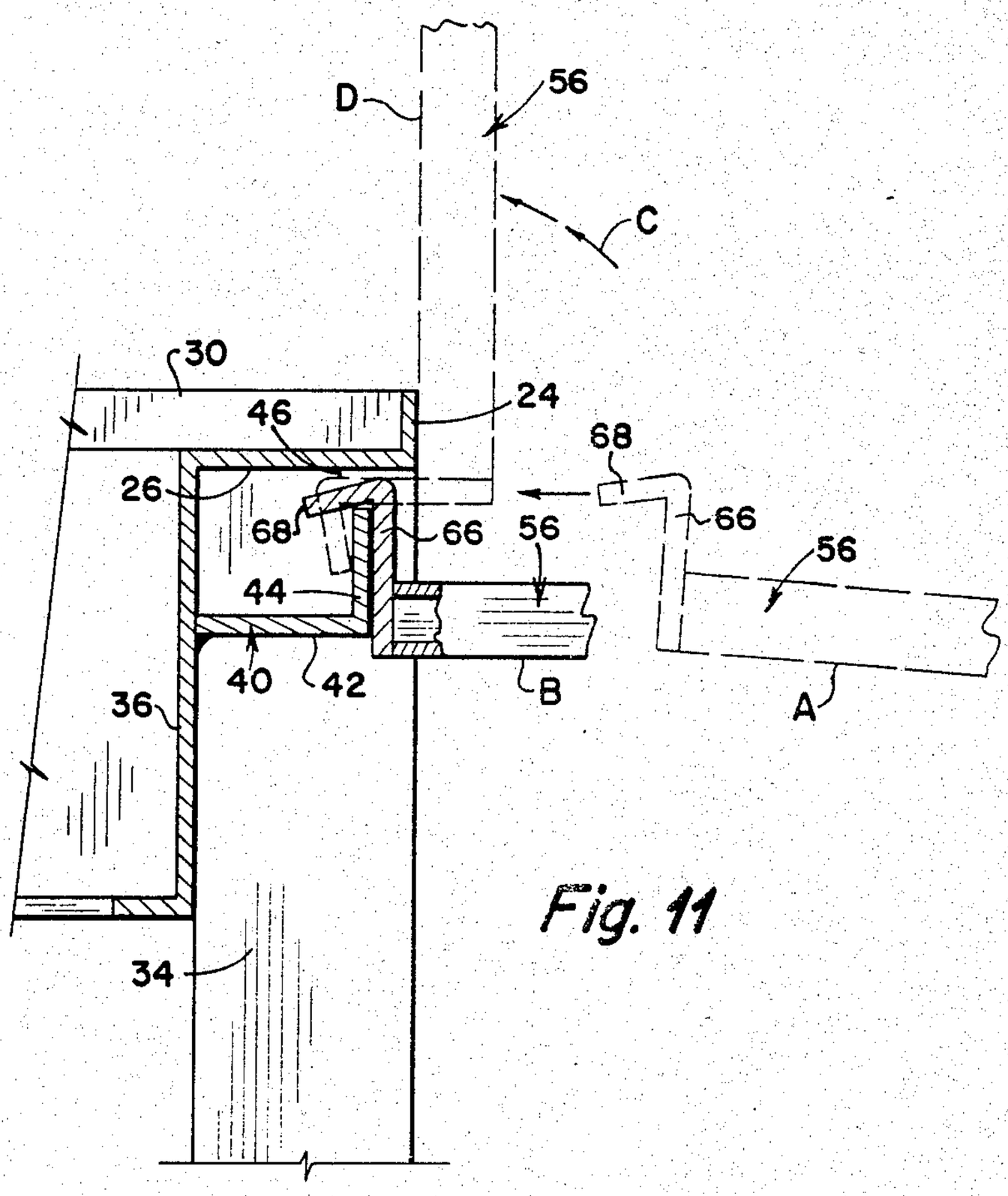
D
56
C
30
46
24
68
26
66
56
66
68
56
44
40
42
B
A
36
34

Fig. 11

# PORCH AND STAIR ASSEMBLY FOR MOBILE HOMES

## BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to improvements in building structures and more particularly, but not by way of limitation, to a porch and stairway assembly for mobile homes, and the like.

2. Description of the Prior Art

Mobile homes have been increasingly popular for use as permanent living quarters in light of the scarcity of homes and the resultant soaring costs for more conventional residences. As a result, many mobile homes are "permanently" installed at a living site, and are no longer considered movable. These structures are normally provided with a foundation or support base structure upon which the mobile home is mounted, and this arrangement places the normal access door or doors at a height considerably above the normal level of the ground upon which the home is disposed. In order to facilitate the entry to and exit from the interior of the home, it is a frequent practice to arrange a series of building blocks, or the like, to provide a "makeshift" stepping arrangement between the ground and the door. It will be readily apparent that this solution to the problem is not only unsightly, but is dangerous in that the stepping onto or off of these somewhat haphazard arrangements is difficult.

## SUMMARY OF THE INVENTION

The present invention contemplates a novel porch and stairway assembly particularly designed and constructed for use with a mobile home during such times that the home is in a substantially permanent location. The novel structure may be easily assembled and installed on the home for facilitating access to the door and providing a porch area for improving the appearance and usefulness of the home. In addition, the novel structure may be readily disassembled for storage in the event the mobile home is to be moved to a different location. The novel assembly comprises a planar section providing a porch for disposition in the proximity of the door of the home, and adjustable support members or legs for supporting the porch in a substantially horizontal level plane regardless of the contour of the terrain upon which the assembly is being installed. A stairway section comprising a pair of spaced mutually parallel rail means having step plates or stair treads mounted therebetween is arranged for ready installation at either end of the porch section, as desired for the particular location of the overall assembly. The tread elements are secured to the spaced rail means in such a manner that the plane of each of the tread elements remain mutaully parallel and are disposed in a horizontal plane when installed in combination with the porch section. A hand rail section is engagable with the outer periphery of the porch section and along at least one side of the stairway section, and is readily attachable thereto in a manner for securing both the porch section and stairway section in the erected and assembled positions thereof. A minimum number of securing bolts, or the like, is required for fastening the entire assembly together, thus facilitating both the installation and disassembly thereof.

When the entire assembly has been installed in the proximity of the door of a mobile home, or the like, not only is the use of the door greatly facilitated, but also



the overall appearance of the entire home is greatly improved. The novel porch and stairway assembly is simple and efficient in operation and economical and durable in construction.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a porch and stairway assembly embodying the invention and illustrated installed in combination with a mobile home.

FIG. **2** is an elevational view of the porch section of a porch and stairway assembly embodying the invention, with a portion of the stairway section in connection therewith.

FIG. **3** is an elevational view of the stairway section of a porch and stairway assembly embodying the invention, with a portion of the porch section illustrated in connection therewith.

FIG. **4** is an end elevational view of a porch and stairway assembly embodying the invention, with a portion thereof cut away for purposes of illustration.

FIG. **5** is a plan view of a porch and stairway assembly embodying the invention, with one assembled position thereof shown in solid lines and an alternate position thereof shown in broken lines.

FIG. **6** is a view taken on line **6—6** of FIG. **5**.

FIG. **7** is a view taken on line **7—7** of FIG. **5**.

FIG. **8** is a view taken on line **6—6** of FIG. **3**.

FIG. **9** is an end elevational view of the porch section of a porch and stairway assembly embodying the invention, with the porch section being illustrated as installed prior to the addition of the stairway and hand rail sections thereto.

FIG. **10** is a view taken on line **10—10** of FIG. **9**.

FIG. **11** is an enlarged sectional view illustrating a typical installation of the hand rails section to the porch and stairway sections.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail, reference character **10** generally indicates a porch and stairway assembly comprising a porch section **12**, a stairway section **14** and a hand rail section **16**, and particularly designed and constructed for installation in the proximity of a door **18** of a mobile home structure **20**, or the like. The porch section **12** comprises an open frame **22**, preferably of a substantially rectangular planar configuration, but not limited thereto, and constructed from angle iron, or the like providing an upstanding leg **24** and an inwardly directed horizontally disposed leg **26** (FIG. **5**). A plurality of longitudinally spaced slats or cross members **28** are welded or otherwise secured to the oppositely disposed legs **26** and extend transversely therebetween to provide support for a plate **30** which functions as a floor for the porch section **12**. It will be readily apparent that the plate **30** may be constructed from any suitable material, such as plywood, and may be subsequently covered with any desired flooring material, such as indoor-outdoor carpet **32**, or the like, as desired, to improve the appearance and utilitarian characteristic of the porch section.

A sleeve **34** is welded or otherwise rigidly secured to each corner of the frame **22** and extends substantially perpendicularly outward therefrom for a purpose as will be hereinafter set forth. In addition, an apron or flange member **36** extends around the periphery of the frame **22** and is spaced slightly inwardly from the up-

standing leg **24**. In addition, the apron **36** may be welded between the sleeves **34**, or otherwise rigidly secured in position, as desired. Further, suitable gusset members **38** may be welded between the sleeves **34** and the adjacent portions of the outer edge of the apron **36** for strength and rigidity, as is well known.

A bracket member **40** of substantially L-shaped cross-sectional configuration is welded, or otherwise secured to the outer surface of the apron **36** in the proximity of each side of the sleeves **34**. Each bracket **40** comprises a first leg member **42** extending substantially perpendicularly outwardly from the outer plane of the apron **36**, and a second leg member **44** disposed substantially parallel with the plane of the apron **36** and spaced outwardly therefrom, as particularly shown in FIG. **6**. The leg **44** extends in a direction toward the element **26** and terminates in spaced relation with respect thereto providing a hiatus **46** therebetween for a purpose as will be hereinafter set forth.

A post means **48** is slidably disposed within each of the sleeves **34** to provide support leg means for the assembly **10**. It is preferably that each leg means **48** be adjustably secured to the respective sleeve member **34** whereby the overall length of each leg may be adjusted in accordance with the surface contours of the ground or terrain wherein the assembly **10** is to be installed. Whereas the adjustable connection between the legs **48** and sleeves **34** may be as desired, as shown herein, each sleeve **34** is preferably provided with at least one pair of axially aligned bores **50** (only one of each being shown in the drawings) for selected alignment with any of a plurality of longitudinally spaced bores **52** provided in each leg **48**. When the desired bore **52** of the leg **48** is in alignment with the bore **50** of the sleeve **34** to provide the optimum length for the leg, suitable securing means, such as a bolt **54** may be inserted through the aligned bores for securing the leg **48** in the selected position with respect to the respective sleeve **34**.

The rail section **16** comprises a first side rail assembly **56** adapted to be disposed along the outer longitudinal edge of the frame **22** and comprises a pair of spaced upstanding support post members **58** and **60** having a top rail member **62** secured therebetween and a plurality of intermediate rail members **64** secured therebetween in substantially parallel spaced relation with respect to the top rail **62**. The outer or lower end of each post **58** and **60** is provided with a plate or flange member **66** (FIG. **11**) having an outwardly and angularly extending flange **68** at the outer end thereof. In order to install the rail assembly **56** in assembled relation with respect to the porch section, the entire rail assembly **56** may be initially placed in a substantially horizontal position, as shown in broken lines at A in FIG. **11**. The flange **68** may be moved into substantial alignment with the hiatus **46**, and may be inserted therethrough, for positioning the plate **66** in abutment with the leg **44** of the bracket **40**, as shown in solid lines at B in FIG. **11**. The rail assembly **56** may then be pivoted upwardly, as indicated by the arrows C, until the assembly is in an upright position as shown in broken lines at D in FIG. **11**. The plate **66** and flange **68** are thus securely locked in position by the bracket **40**, and since each leg **58** and **60** are similarly locked in position with the respective bracket **40**, the entire assembly **56** is securely retained in place with respect to the porch section **10**.

The porch section **16** further comprises an end rail assembly **70** of a generally similar construction as the side rail assembly **56**, with the exception that the end rail assembly is normally of a shorter length than the side rail assembly. It is to be noted, however, that the planar dimensions of the porch member **30** may be substantially as desired, and is not limited to the rectangular configuration shown herein. The end rail assembly **70** is secured to the porch member **30** may be substantially any configuration as desired and is not limited to the rectangular configuration shown herein. The end rail assembly **70** is secured to the porch section **12** in the same manner as hereinbefore set forth in connection with the side rail assembly **56**. When the two rail sections are thus assembled with the porch section, an angle member **72** may be placed over the adjacent ends of the upper rail members thereof and may be bolted or otherwise secured thereto, thus securely retaining the rails sections in place.

It is preferably to provide at least one end or side edge of the porch section with means for securing the step assembly **14** thereto. Thus, it is preferable to provide a bracket **40***a* at some position spaced from the corner bracket **40** on at least one side of the apron **36** as particularly shown in FIG. **1**. It is preferable that the bracket **40***a* be placed in such a position as to provide a sufficient clearance for securing the step assembly **14** to the said side of the apron **36** as will be hereinafter set forth. In addition, the bracket **40** is substantially identical to the brackets **40** and is for the same purpose. It is also preferable to provide another end rail assembly **74** for this end of the porch assembly, the rail assembly **74** being of a similar construction as the rail assemblies **56** and **70**, but of a length corresponding to the spacing between the brackets **40** and **40***a*. The rail assembly **74** is secured in position in the manner as hereinbefore set forth, and an angle member **76** similar to the angle member **72** may be placed between the top rail members of the two adjacent rail assemblies **74** and **56** and bolted or otherwise secured in place. It will be apparent that the entire rail section **16** may be secured in assembled relation with respect to the porch section by the use of only four bolts, or the like, thus providing for great ease of installation of the assembly **10**.

The stairway section **14** is so constructed that the plane of each of the steps of the stairway is always parallel to the plane of the other steps, regardless of the angle at which the section **14** must be positioned in the installation of the assembly **10**. The stairway section **14** comprises a first pair of elongated substantially aligned, mutually parallel, spaced side rails or members **78** and **80** disposed in substantial transverse alignment with a pair of similar spaced side rails or members **82** and **84**, (FIG. **1**), respectively. A plurality of stair steps or treads **86** are secured between the transversely spaced pairs of side rails **78–80** and **80–82** in spaced relation with respect to one another. The upper end of the rails **78–80** and **82–84** as shown in the drawings are pivotally secured to a pair of spaced substantially triangular plates **88** and **90** in any suitable manner such as by pivot pins **92** and **94**.

The uppermost step **86***a* as shown in the drawings is supported by a pair of substantially identical but oppositely disposed cross members **96** and **98** welded or otherwise secured to the plates **88** and **90**. Each cross member **96** and **98** is preferably of a cross section configuration generally resembling a first L-shaped flange **100** disposed in a substantially horizontal position and supporting a substantially vertically extending L-shaped flange **102**, as particularly shown in FIG. **6**. One of the cross members, such as the cross member **98** is

provided with an outwardly extending flange **104** having an angularly extending flange **106** at the outer end thereof for engagement with a bracket **40** in the manner as hereinbefore set forth in connection with the rail assemblies.

Each of the remaining steps **86** are supported by cross members **108** and **110** (FIG. 7) generally similar to the cross members **96** and **98**. The cross members **108** and **110** are welded or otherwise secured between a pair of plate members **112**, and each plate member **112** is pivotally secured between the transversely aligned rail members **78–80** and **82–84** by means of bolts **114** and **116**, or the like. In this manner, each step **86** is pivotally secured between the side rail members and a plurality of parallelograms are provided whereby each of the steps remains in a planar parallel relationship with each of the other steps regardless of the angular position of the rail members **78–80** and **82–84**.

In addition, a hand rail assembly **118** comprising a pair of upstanding end posts **120** and **122** having a top hand rail **124** and at least one intermediate longitudinally extending rail **126** secured therebetween. The ends of the rails **124** and **126** are pivotally secured to the posts **120** and **122** in any suitable manner, such as by pivot pins **128**. In addition, one end of the post **120** is pivotally secured to the side member **78** as shown at **130** in FIG. **3** and the post **122** is pivotally secured to the opposite end of the side member **78** at a point spaced above the lower end of the post **122** in any suitable manner (not shown). The post **122** extends slidably through a substantially U-shaped bracket **132** (FIG. **8**) which is secured to the outer surface of the side member **80** in any suitable manner, such as by bolts **134** and **136**. A substantially identical hand rail assembly may be provided for the side members **82** and **84**, if desired, but as a practical matter, it has been found that upon the installation of the porch assembly **10** in the proximity of the wall of the mobile home **20**, as shown in FIG. **1**, a single hand rail assembly **118** is sufficient.

It is preferably to provide a cross member **119** secured between the sleeves **34** at the end of the frame **22** wherein the stairway assembly **14** is to be installed.

In order to install the stairway section **14** in connection with the porch section **12**, the assembly **14** may be manually maneuvered in such a manner as to position the flange members **104** in spaced relation with respect to the end of the frame **22** wherein it is desired to install the stairway, and in a slightly offset relationship with respect to the brackets **40** and **40***a* as particularly shown in FIG. **10**. The entire assembly **14** may then be moved in a direction toward the apron **36**, as shown by the arrows E in FIG. **10**. When the flanges **106** have been positioned in substantial alignment with the hiatus between the apron **36** and the brackets **40** and **40***a*, the entire assembly **14** may be moved in a direction toward the brackets as shown by the arrows F in FIG. **10**. When the flanges **106** are engaged with the brackets **40** and **40***a* in the manner as hereinbefore set forth in connection with the installation of the rail assemblies **56, 70** and **74**, the stairway assembly **14** may be pivoted downwardly whereby the outermost step **86***b* will be positioned in the proximity of the surface of the ground, as will be particularly seen in FIG. **1**. In this position the plates **88** and **90** will abutt the cross member **119**. Of course, it will be apparent that it may be desirable to provide a second upstanding post **138** (FIG. **10**) at the opposite end of the upper step **86***a* with respect to the post **122**, but there is no limitation to the use of such a second post.

Whereas the particular porch and stairway assembly **10** shown herein includes a substantially rectangular porch floor **30**, it will be apparent that the porch floor **30** may be square, or substantially any other suitable configuration, as desired. In addition, it is preferable that the frame **22** be of a symmetric construction whereby the stairway section **14** may be secured to either end of the porch and is not limited to the particular relationship with respect to the porch floor **30** as shown herein. Of course, if desired, the stairway section **14** may be installed in such a manner as to extend perpendicularly outwardly from the mobile home **20** rather than substantially parallel thereto as shown herein.

In order to install the assembly **10** in the proximity of the door **18** to provide an attractive and efficient porch structure therefor, the porch section **12** may be erected in the manner as hereinbefore set forth, and the legs **48** adjusted whereby the floor **30** is disposed substantially level in a horizontal position regardless of the contour of the ground upon which the assembly **10** is mounted. One edge of the frame **22** may be placed in an abutting relationship with the outer wall of the mobile home **20**, and it may be desirable to secure the porch section thereto in any suitable manner (not shown), but it is to be understood that the assembly may be entirely separate from the mobile home **20**, if desired.

The stairway section **14** may then installed at the desired location and in the manner as hereinbefore set forth, it being noted that the upper surface of each of the steps **86** will be positioned in a substantially level horizontal position and in a parallel planar relationship with each of the other steps due to the novel parallelogram type construction of the section **14**. When the stairway section **14** has been properly installed, the handrail section **74** may be installed in the manner as hereinbefore set forth. The installation of the handrail section **74** outboard of the stairway section **14**, as shown in FIG. **1** causes the handrail assembly **74** to retain the installed section **14** against outward movement, thus precluding an accidental disengagement of the section **14** from the porch section **12**. The handrail sections **56** and **70** may also be installed in connection with the porch section **12** as hereinbefore set forth, and the angle members **72** and **76** may be bolted in place for retaining the handrail sections **56, 70** and **74** in the upright position therefor.

The entire installation operation or assembly procedure for the porch and stairway assembly **10** is simple and efficient and requires a minimum of bolts, or the like, for retaining the assembly in the installed relationship between the sections thereof. In addition, in the event the mobile home **20** is to be moved, or for any other reason, it is desired to remove the assembly **10** from the proximity thereof, the assembly **10** may be quickly and easily disassembled by reversing the foregoing operations, whereupon the entire assembly **10** may be stored in a storage area of minimum size.

From the foregoing it will be apparent that the present invention provides a novel porch and stairway assembly for a mobile home, or the like, which comprises a porch section, a handrail section and a stairway section, all of which may be readily assembled together with a minimum of effort and tools since only a minimum number of bolts are required for securing all of the sections in the assembled relationship. The novel assembly may be stored in a minimum area when not in use,

and may be quickly and easily installed or removed from the proximity of the mobile home as desired.

Whereas the present invention has been described in particular relation to the drawings attached hereto, it should be understood that other and further modifications, apart from those shown or suggested herein may be made within the spirit and scope of this invention.

What is claimed is:

1. A porch and stairway assembly particularly for mobile homes and comprising a porch section, a handrail section, a stairway section, and complementary bracket means cooperating between the sections for ease of assembly and disassembly of the porch and stairway assembly; the porch section including an open frame means supporting a porch floor means, and adjustable support leg means secured to the frame means for positioning of the porch floor means in a substantially level horizontal position regardless of the contour upon which the porch section is installed; and wherein the complementary bracket means comprises first bracket means of substantially L-shaped cross-sectional configuration secured to the open frame means and providing a hiatus therebetween, second bracket means of substantially L-shaped cross-sectional configuration provided on the handrail section for an interlocking and removable engagement with the first bracket means for ease of installation of the handrail section with the porch section without the use of additional securing means, and third bracket means provided on the stairway section for an interlocking and removable engagement with the first bracket means for ease of installation of the stairway section with the porch section without the use of additional securing means.

2. A porch and stairway assembly as set forth in claim 1 wherein the handrail section means comprises a plurality of independent handrail assemblies each removably securable to the porch section, and means interconnecting adjacent handrail assemblies whereby the entire porch and stairway assembly is locked in the assembled position thereof.

3. A porch and stairway assembly as set forth in claim 1 wherein the handrail section comprises a plurality of independent handrail assemblies, each handrail assembly comprising a pair of end post means having at least one handrail member secured therebetween.

4. A porch and stairway assembly as set forth in claim 1 wherein each of the end post means is provided with said complementary bracket means for engagement with the porch section means.

5. A porch and stairway assembly as set forth in claim 1 wherein the stairway section comprises a pair of longitudinally extending spaced siderail means having a plurality of step means pivotally secured therebetween, the pivotal connection between the step means and the side rail means providing parallelogram means whereby the plane of each step means is maintained in parallel relationship with the plane of each of the other step means.

* * * * *